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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/673,532	11/27/2000	Tetsujiro Kondo	450101-02344	7536

20999   7590   07/16/2007
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ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
07/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _22 June 2007_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1,3-10,12-19,21-27,37-42,49-57,64,66-68,70-72 and 75_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1,3-10,12-19,21-27,37-42,49-57,64,66-68,70-72 and 75_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Detailed Action

Response to Arguments

1.   Applicant's arguments filed 06/22/2007 have been fully considered but they are not

persuasive.

Applicant sates that the cited reference of Ide is not a prior art as it claims the benefit of

application 09/441,233 filed on Nov. 16, 1999, which is after the foreign priority date of the

present application.

In response the Examiner respectfully disagrees. Applicant cannot rely upon the foreign

priority papers to overcome this rejection because a translation of said papers has not been made

of record in accordance with 37 CFR 1.55. See MPEP § 201.15. Therefore the rejection in view

of Ide is maintained. In addition, Applicant's argument is moot in view of the new ground(s) of

rejection sets for the below.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3.   Claims 1, 3-5, 7, 10, 12-14, 16, 37-40, 49-54, 64, and 65-71 are rejected under 35 U.S.C.

103(a) as being unpatentable over Takahashi et al (US 5,469,216) in view of Vincent et al. (US

Pat. No. 5,436,659) and further in view of Dischert (US Pat. No. 4,499,494) Miyake (US Pat.

No. 6,222,985) and Ide (US PG PUB 2004/0208491).

Regarding claim 1, Takahashi et al discloses an image-signal processing apparatus (Fig.

1) for processing an input image signal at a position of each pixel, said input image signal having

any one of various color components, said apparatus comprising:

extraction means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) for

extracting a plurality of pixels located near each pixel of interest of the image signal;

class-determining means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10)

for determining a class from the pixels extracted by the extraction means; and

pixel-generating means (predicting circuit 5 of Fig. 1, col. 3, lines 33-42) for generating a

pixel at a position of the pixel of interest in accordance with the class determined by the class-

determining means, said pixel having a color component different from at least the color

component of the pixel of interest,

wherein the plurality of pixels extracted by the extraction means and used by the class

determining means includes at least one pixel that is not adjacent to the pixel of interest (col. 3,

lines 44-60 and col. 4, lines 50-63).

Claim 1 differs from Takahashi in that the claim further requires defect-correcting means for correcting defective pixels in the input image signal.

In the same field of endeavor Vincent discloses a digital imaging system (see col. 4 lines 52-64 and fig. 1). Vincent teaches defect correction block which identifies the location of defective pixels in the image so they can be corrected (see col. 8 lines 30-58). Therefore in light of the teaching in Vincent it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takahashi by providing defect correcting means in order to correct defective images.

Claim 1 further differs from the proposed combination of Takahashi and Vincent in that the claim further requires clamping means for clamping the input image signal to eliminate shifted components of the defect-corrected image signal.

In the same field of endeavor Dischert discloses correcting non-linearity of signals. Dischert teaches it is common to clamp video signal (see col. 1 lines 9-32). Dischert further discloses the gamma corrector reduces or eliminates the perturbation of the signal by reducing or eliminating noise near the black level (see fig. 2 and col. 2 line 62-col. 3 line 11). Dischert further discloses clamping means is coupled to source of synchronizing signals, source of television signals, and source of reference voltage source for clamping particular signal amplitude thereby producing a clamped television signal (see claim 1). Therefore in light of the teaching in Dischert, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the proposed combination of Takahashi and Vincent by including clamping means in order to reduce the noise level.

Claim 1 further differs from Takahashi, Vincent, and Dischert in that the claim further

requires white-balancing means for white-balancing the input image signal to correct the gain of

the clamped image signal supplied from the clamping means.

In the same field of endeavor Miyake discloses an analog image processing circuit 42 in

fig. 1 white balances and gamma-corrects the input image signal (see col. 6 line 61-col. 7 line 5).

Therefore in light of the teaching in Miyake it would have been obvious to one of ordinary skill

in the art at the time the invention was made to white-balance image signals in order to adjust the

image.

Claim 1 further differs from the above proposed combination in that the claim further

requires pixel having all color components.

In the same field of endeavor Ide discloses thinned-out image data are created using the

signal processing circuit, 34a in fig. 1, as a result each pixel will have all the color components

(see paragraph 0098-0110, 0115). Therefore in light of the teaching in Ide it would have been

obvious to one of ordinary skill in the art at the time the invention was made to generate a pixel

with all color components in order to improve resolution of the image.

Regarding claim 3, Takahashi et al discloses the claimed characterized in that the pixel-

generating means comprises storage means for storing a set of prediction coefficients for each

class and operation means for performing an operation on a set of prediction coefficients which

corresponds to the class determined by the class-determining means and the pixels located near

the pixel of interest which have been extracted by the extraction means, thereby to generate a

pixel having a color component different form at least the color component of the pixel of

interest (coefficient memory 4 of Fig. 1, col. 4, line 64 to col. 5, line 40).

Regarding claim 4, Takahashi et al discloses the claimed characterized in that the operation means performs an operation on a linear combination of the set of prediction coefficients and the values of the pixels located near the pixel of interest (col. 5, line 60 to col. 6, line 58).

Regarding claim 5, Takahashi et al discloses the claimed characterized in that the extraction means extracts at least one different pixel and supplies the same to the class-determining means and the operation means (block segmenting circuit 2 and class code circuit 3 of Fig. 1, col. 3, lines 15-43).

Regarding claim 7, Takahashi et al discloses the claimed characterized by further comprising acquisition means for acquiring an image signal having a pixel at each pixel position, said pixel having one of various color components (Fig. 2, col. 3, lines 44-60).

Method claims 10, 12-14 and 16 are rejected for the same reasons as discussed in apparatus claims 1, 3-5 and 7 above.

Regarding claim 37, Takahashi et al discloses an image-signal processing apparatus for processing an input image signal, said input image signal having a prescribed number of sample values which constitute one image and each of which represents any one of various colors at each pixel, said apparatus comprising:

extraction means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) for extracting a plurality of pixels located near each pixel of interest of the input image signal;

class-determining means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) for determining a class from the pixels extracted by the extraction means; and

output image-signal generating means (predicting circuit 5 of Fig. 1, col. 2, lines 32-44 and col. 3, lines 33-42) for generating an output image signal having more sample values than the prescribed number, for the various colors, by processing each pixel of the input image signal in accordance with the class determined by the class-determining means,

wherein the plurality of pixels extracted by the extraction means and used by the class determining means includes at least one pixel that is not adjacent to the pixel of interest (col. 3, lines 44-60 and col. 4, lines 50-63).

Claim 37 differs from Takahashi in that the claim further requires defect-correcting means for correcting defective pixels in the input image signal.

In the same field of endeavor Vincent discloses a digital imaging system (see col. 4 lines 52-64 and fig. 1). Vincent teaches defect correction block which identifies the location of defective pixels in the image so they can be corrected (see col. 8 lines 30-58). Therefore in light of the teaching in Vincent it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takahashi by providing defect correcting means in order to correct defective images.

Claim 37 further differs from the proposed combination of Takahashi and Vincent in that the claim further requires clamping means for clamping the input image signal to eliminate shifted components of the defect-corrected image signal.

In the same field of endeavor Dischert discloses correcting non-linearity of signals. Dischert teaches it is common to clamp video signal (see col. 1 lines 9-32). Dischert further discloses the gamma corrector reduces or eliminates the perturbation of the signal by reducing or eliminating noise near the black level (see fig. 2 and col. 2 line 62-col. 3 line 11). Dischert

further discloses clamping means is coupled to source of synchronizing signals, source of television signals, and source of reference voltage source for clamping particular signal amplitude thereby producing a clamped television signal (see claim 1). Therefore in light of the teaching in Dischert, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the proposed combination of Takahashi and Vincent by including clamping means in order to reduce the noise level.

Claim 37 further differs from Takahashi, Vincent, and Dischert in that the claim further requires white-balancing means for white-balancing the input image signal to correct the gain of the clamped image signal supplied from the clamping means.

In the same field of endeavor Miyake discloses an analog image processing circuit 42 in fig. 1 white balances and gamma-corrects the input image signal (see col. 6 line 61-col. 7 line 5). Therefore in light of the teaching in Miyake it would have been obvious to one of ordinary skill in the art at the time the invention was made to white-balance image signals in order to adjust the image.

Claim 37 further differs from the above proposed combination in that the claim further requires pixel having all color components.

In the same field of endeavor Ide discloses thinned-out image data are created using the signal processing circuit, 34a in fig. 1, as a result each pixel will have all the color components (see paragraph 0098-0110, 0115). Therefore in light of the teaching in Ide it would have been obvious to one of ordinary skill in the art at the time the invention was made to generate a pixel with all color components in order to improve resolution of the image.

Regarding claim 38, Takahashi et al discloses the claimed characterized in that the output image-signal generating means comprises storage means for storing a set of prediction coefficients for each class and operation means for performing an operation on a set of prediction coefficients which corresponds to the class determined by the class-determining means and the pixels located near the pixel of interest which have been extracted by the extraction means, thereby to generate the output image signal (coefficient memory 4 of Fig. 1, col. 4, line 64 to col. 5, line 40).

Method claims 39-40 are rejected for the same reasons as discussed in apparatus claims 37-38 above.

Regarding claim 49, Takahashi et al discloses an image-signal processing apparatus (Fig. 1) for processing an input image signal at a position of each pixel, said input image signal having any one of various color components, said apparatus comprising:

extraction means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) for extracting a plurality of pixels located near each pixel of interest of the input image signal, each pixel having a color component of the highest density of all color components;

class-determining means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) for determining a class from the pixels extracted by the extraction means; and

pixel-generating means (predicting circuit 5 of Fig. 1, col. 2, lines 32-44 and col. 3, lines 33-42) for generating a pixel at a position of the pixel of interest in accordance with the class determined by the class-determining means, said pixel having a color component different from at least the color component of the pixel of interest,

wherein the plurality of pixels extracted by the extraction means and used by the class determining means includes at least one pixel that is not adjacent to the pixel of interest (col. 3, lines 44-60 and col. 4, lines 50-63).

Claim 49 differs from Takahashi in that the claim further requires defect-correcting means for correcting defective pixels in the input image signal.

In the same field of endeavor Vincent discloses a digital imaging system (see col. 4 lines 52-64 and fig. 1). Vincent teaches defect correction block which identifies the location of defective pixels in the image so they can be corrected (see col. 8 lines 30-58). Therefore in light of the teaching in Vincent it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takahashi by providing defect correcting means in order to correct defective images.

Claim 49 further differs from the proposed combination of Takahashi and Vincent in that the claim further requires clamping means for clamping the input image signal to eliminate shifted components of the defect-corrected image signal.

In the same field of endeavor Dischert discloses correcting non-linearity of signals. Dischert teaches it is common to clamp video signal (see col. 1 lines 9-32). Dischert further discloses the gamma corrector reduces or eliminates the perturbation of the signal by reducing or eliminating noise near the black level (see fig. 2 and col. 2 line 62-col. 3 line 11). Dischert further discloses clamping means is coupled to source of synchronizing signals, source of television signals, and source of reference voltage source for clamping particular signal amplitude thereby producing a clamped television signal (see claim 1). Therefore in light of the teaching in Dischert, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the proposed combination of Takahashi and Vincent by including

clamping means in order to reduce the noise level.

Claim 49 further differs from Takahashi, Vincent, and Dischert in that the claim further

requires white-balancing means for white-balancing the input image signal to correct the gain of

the clamped image signal supplied from the clamping means.

In the same field of endeavor Miyake discloses an analog image processing circuit 42 in

fig. 1 white balances and gamma-corrects the input image signal (see col. 6 line 61-col. 7 line 5).

Therefore in light of the teaching in Miyake it would have been obvious to one of ordinary skill

in the art at the time the invention was made to white-balance image signals in order to adjust the

image.

Claim 49 further differs from the above proposed combination in that the claim further

requires pixel having all color components.

In the same field of endeavor Ide discloses thinned-out image data are created using the

signal processing circuit, 34a in fig. 1, as a result each pixel will have all the color components

(see paragraph 0098-0110, 0115). Therefore in light of the teaching in Ide it would have been

obvious to one of ordinary skill in the art at the time the invention was made to generate a pixel

with all color components in order to improve resolution of the image.

Regarding claim 50, Takahashi et al discloses the claimed characterized in that the pixel-

generating means comprises storage means for storing a set of prediction coefficients for each

class and operation means for performing an operation on a set of prediction coefficients which

corresponds to the class determined by the class-determining means and the pixels located near

the pixel of interest which have been extracted by the extraction means, thereby to generate a

pixel having the different color component (coefficient memory 4 of Fig. 1, col. 4, line 64 to col. 5, line 40).

Regarding claim 51, Takahashi et al discloses the claimed characterized in that the pixel-generating means generates a pixel having all color components at the position of the pixel of interest (col. 4, lines 50-63).

Method claims 52-54 are rejected for the same reasons as discussed in apparatus claims.

Regarding claim 64, Takahashi et al discloses an image-signal processing apparatus (Fig. 1) for processing an input image signal at a position of each pixel, said input image signal having any one of various color components, said apparatus comprising:

extraction means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) for extracting a plurality of pixels located near each pixel of interest of the input image signal;

class-determining means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) including a characteristic-data generating section for generating characteristic data about the pixels of each color component, from the pixels of each color component which have been extracted by the extraction means, and a class-determining section for determining a class from the characteristic data generated for each color component; and

pixel-generating means (predicting circuit 5 of Fig. 1, col. 2, lines 32-44 and col. 3, lines 33-42) for generating a pixel in accordance with the class determined by the class-determining means, said pixel having a color component different from at least the color component of the pixel of interest,

wherein the plurality of pixels extracted by the extraction means and used by the class

determining means includes at least one pixel that is not adjacent to the pixel of interest (col. 3,

lines 44-60 and col. 4, lines 50-63).

Claim 64 differs from Takahashi in that the claim further requires defect-correcting

means for correcting defective pixels in the input image signal.

In the same field of endeavor Vincent discloses a digital imaging system (see col. 4 lines

52-64 and fig. 1). Vincent teaches defect correction block which identifies the location of

defective pixels in the image so they can be corrected (see col. 8 lines 30-58). Therefore in light

of the teaching in Vincent it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Takahashi by providing defect correcting means in order

to correct defective images.

Claim 64 further differs from the proposed combination of Takahashi and Vincent in that

the claim further requires clamping means for clamping the input image signal to eliminate

shifted components of the defect-corrected image signal.

In the same field of endeavor Dischert discloses correcting non-linearity of signals.

Dischert teaches it is common to clamp video signal (see col. 1 lines 9-32). Dischert further

discloses the gamma corrector reduces or eliminates the perturbation of the signal by reducing or

eliminating noise near the black level (see fig. 2 and col. 2 line 62-col. 3 line 11). Dischert

further discloses clamping means is coupled to source of synchronizing signals, source of

television signals, and source of reference voltage source for clamping particular signal

amplitude thereby producing a clamped television signal (see claim 1). Therefore in light of the

teaching in Dischert, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the proposed combination of Takahashi and Vincent by including

clamping means in order to reduce the noise level.

Claim 64 further differs from Takahashi, Vincent, and Dischert in that the claim further

requires white-balancing means for white-balancing the input image signal to correct the gain of

the clamped image signal supplied from the clamping means.

In the same field of endeavor Miyake discloses an analog image processing circuit 42 in

fig. 1 white balances and gamma-corrects the input image signal (see col. 6 line 61-col. 7 line 5).

Therefore in light of the teaching in Miyake it would have been obvious to one of ordinary skill

in the art at the time the invention was made to white-balance image signals in order to adjust the

image.

Claim 64 further differs from the above proposed combination in that the claim further

requires pixel having all color components.

In the same field of endeavor Ide discloses thinned-out image data are created using the

signal processing circuit, 34a in fig. 1, as a result each pixel will have all the color components

(see paragraph 0098-0110, 0115). Therefore in light of the teaching in Ide it would have been

obvious to one of ordinary skill in the art at the time the invention was made to generate a pixel

with all color components in order to improve resolution of the image.

Regarding claim 65, Takahashi et al discloses the claimed characterized in that the

characteristic-data generating section generates, as the characteristic data, a space activity of the

pixels of each color component, which have been extracted by the extraction means (class code

circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10).

Regarding claim 66, Takahashi et al discloses the claimed characterized in that the
characteristic-data generating section generates the space activity by performing of ADRC
(Adaptive Dynamic Range Coding) process on the pixels of each color component (col. 1, lines
39-50).

Regarding claim 67, Takahashi et al discloses the claimed characterized in that the
extraction means extracts the pixels corresponding to each color component from pixels existing
in a region near the pixel of interest (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line
10).

Method claims 68-71 are rejected for the same reasons as discussed in apparatus claims
64-67 above.

4.   Claims 19-23, 25, 41-42, 55-57, and 72, 74-75 are rejected under 35 U.S.C. 103(a) as
being unpatentable over Takahashi et al (US 5,469,216) in view of Vincent et al. (US Pat. No.
5,436,659) and further in view of Dischert (US Pat. No. 4,499,494), Miyake (US Pat. No.
6,222,985), Ide (US PG PUB 2004/0208491), and further in view of Official Notice.

Regarding claim 19, Takahashi as further modified by Vincent discloses all the claimed
limitations as discussed in claim 1 above except for providing a recording medium storing a
computer program.

It is noted that using microprocessor with ROM for processing video signal is old and
well known in the art and; therefore, Official Notice is taken.

It would have been obvious to one of ordinary skill in the art at the time of the invention
to incorporate the well known microprocessor and ROM into Takahashi et al's system in order
to simplify and accurately process the video signal.

Claims 20-23 and 25 are rejected for the same reasons as discussed in claims 2-5 and 7 above.

Regarding claim 41, Takahashi as further modified by Vincent discloses all the claimed limitations as discussed in claim 39 above except for providing a recording medium storing a computer program.

It is noted that using microprocessor with ROM for processing video signal is old and well known in the art and; therefore, Official Notice is taken.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the well known microprocessor and ROM into Takahashi et al's system in order to simplify and accurately process the video signal.

Claim 42 is rejected for the same reasons as discussed in claim 40 above.

Regarding claim 55, Takahashi as further modified by Vincent discloses all the claimed limitations as discussed in claim 52 above except for providing a recording medium storing a computer program.

It is noted that using microprocessor with ROM for processing video signal is old and well known in the art and; therefore, Official Notice is taken.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the well known microprocessor and ROM into Takahashi et al's system in order to simplify and accurately process the video signal.

Claims 56-57 are rejected for the same reasons as discussed in claims 53-54 above.

Regarding claim 72, Takahashi as further modified by Vincent discloses all the claimed limitations as discussed in claim 64 above except for providing a recording medium storing a computer program.

It is noted that using microprocessor with ROM for processing video signal is old and well known in the art and; therefore, Official Notice is taken.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the well known microprocessor and ROM into Takahashi et al's system in order to simplify and accurately process the video signal.

Claims 74-75 are rejected for the same reasons as discussed in claims 66-67 above.

5.   Claims 19-23, 25, 41-42, 55-57, and 72, 74-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (US 5,469,216) in view of Vincent et al. (US Pat. No. 5,436,659) and further in view of Dischert (US Pat. No. 4,499,494), Miyake (US Pat. No. 6,222,985), Ide (US PG PUB 2004/0208491), and further in view of Kndo et al (US 5,748,235).

Regarding claim 6, Takahashi as further modified by Vincent discloses all the claimed limitations as discussed in claim 1 above except for providing the claimed characterized in that the color component represent a color of red, blue, or green.

Kondo et al teaches that the capability of converting standard definition to high definition can be applied to color image generated from CCD (col. 4, lines 30-44).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the generating of color image generated from CCD as taught by Kondo et al into Takahashi et al's system in order to convert color image to high definition.

Regarding claim 8, Kondo et al discloses the claimed characterized in that the acquisition

means is a solid-state imaging element (col. 4, lines 30-44).

Regarding claim 9, the proposed combination of Takahashi, Vincent, and Kondo

disclose all the claimed limitations except for providing the claimed characterized in that the

solid-state imaging element is a CCD image sensor of the Bayer arrangement.

It is noted that the CCD image sensor of the Bayer arrangement is old and well known in

the art and; therefore, Official Notice is taken.

It would have been obvious to one of ordinary skill in the art at the time of the invention

to incorporate the well known CCD image sensor of the Bayer arrangement into Kondo et al's

system since it merely amounts to selecting readily available CCD.

Claims 15 and 17-18 are rejected for the same reasons as discussed in claims 6 and 8-9 above.

Claims 24 and 26-27 are rejected for the same reasons as discussed in claims 6 and 8-9

above.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7.   Claims 1, 3-5, 7, 10, 12-14, 16, 37-40, 49-54, 64, and 65-71 are rejected under 35 U.S.C.

103(a) as being unpatentable over Takahashi et al (US 5,469,216) in view of Vincent et al. (US

Pat. No. 5,436,659) and further in view of Dischert (US Pat. No. 4,499,494) Miyake (US Pat.

No. 6,222,985) and Nagasaka (US Pat .No. 6, 400, 890).

Regarding claim 1, Takahashi et al discloses an image-signal processing apparatus (Fig.

1) for processing an input image signal at a position of each pixel, said input image signal having

any one of various color components, said apparatus comprising:

extraction means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) for

extracting a plurality of pixels located near each pixel of interest of the image signal;

class-determining means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10)

for determining a class from the pixels extracted by the extraction means; and

pixel-generating means (predicting circuit 5 of Fig. 1, col. 3, lines 33-42) for generating a

pixel at a position of the pixel of interest in accordance with the class determined by the class-

determining means, said pixel having a color component different from at least the color

component of the pixel of interest,

wherein the plurality of pixels extracted by the extraction means and used by the class

determining means includes at least one pixel that is not adjacent to the pixel of interest (col. 3,

lines 44-60 and col. 4, lines 50-63).

Claim 1 differs from Takahashi in that the claim further requires defect-correcting means for correcting defective pixels in the input image signal.

In the same field of endeavor Vincent discloses a digital imaging system (see col. 4 lines 52-64 and fig. 1). Vincent teaches defect correction block which identifies the location of defective pixels in the image so they can be corrected (see col. 8 lines 30-58). Therefore in light of the teaching in Vincent it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takahashi by providing defect correcting means in order to correct defective images.

Claim 1 further differs from the proposed combination of Takahashi and Vincent in that the claim further requires clamping means for clamping the input image signal to eliminate shifted components of the defect-corrected image signal.

In the same field of endeavor Dischert discloses correcting non-linearity of signals. Dischert teaches it is common to clamp video signal (see col. 1 lines 9-32). Dischert further discloses the gamma corrector reduces or eliminates the perturbation of the signal by reducing or eliminating noise near the black level (see fig. 2 and col. 2 line 62-col. 3 line 11). Dischert further discloses clamping means is coupled to source of synchronizing signals, source of television signals, and source of reference voltage source for clamping particular signal amplitude thereby producing a clamped television signal (see claim 1). Therefore in light of the teaching in Dischert, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the proposed combination of Takahashi and Vincent by including clamping means in order to reduce the noise level.

Claim 1 further differs from Takahashi, Vincent, and Dischert in that the claim further

requires white-balancing means for white-balancing the input image signal to correct the gain of

the clamped image signal supplied from the clamping means.

In the same field of endeavor Miyake discloses an analog image processing circuit 42 in

fig. 1 white balances and gamma-corrects the input image signal (see col. 6 line 61-col. 7 line 5).

Therefore in light of the teaching in Miyake it would have been obvious to one of ordinary skill

in the art at the time the invention was made to white-balance image signals in order to adjust the

image.

Claim 1 further differs from the above proposed combination in that the claim further

requires pixel having all color components.

In the same field of endeavor Nagasaka discloses pixels having all color components (see

col. 9 lines 33-57). Nagasaka further discloses self organization of video to be classified and

arranged on the basis of the identity of partial images of video (see abstract). Therefore in light

of the teaching in Nagasaka it would have been obvious to one of ordinary skill in the art at the

time the invention was made to generate a pixel with all color components in order to improve

resolution of the image.

Regarding claim 3, Takahashi et al discloses the claimed characterized in that the pixel-

generating means comprises storage means for storing a set of prediction coefficients for each

class and operation means for performing an operation on a set of prediction coefficients which

corresponds to the class determined by the class-determining means and the pixels located near

the pixel of interest which have been extracted by the extraction means, thereby to generate a

pixel having a color component different form at least the color component of the pixel of

interest (coefficient memory 4 of Fig. 1, col. 4, line 64 to col. 5, line 40).

Regarding claim 4, Takahashi et al discloses the claimed characterized in that the

operation means performs an operation on a linear combination of the set of prediction

coefficients and the values of the pixels located near the pixel of interest (col. 5, line 60 to col. 6,

line 58).

Regarding claim 5, Takahashi et al discloses the claimed characterized in that the

extraction means extracts at least one different pixel and supplies the same to the class-

determining means and the operation means (block segmenting circuit 2 and class code circuit 3

of Fig. 1, col. 3, lines 15-43).

Regarding claim 7, Takahashi et al discloses the claimed characterized by further

comprising acquisition means for acquiring an image signal having a pixel at each pixel position,

said pixel having one of various color components (Fig. 2, col. 3, lines 44-60).

Method claims 10, 12-14 and 16 are rejected for the same reasons as discussed in

apparatus claims 1, 3-5 and 7 above.

Regarding claim 37, Takahashi et al discloses an image-signal processing apparatus for

processing an input image signal, said input image signal having a prescribed number of sample

values which constitute one image and each of which represents any one of various colors at

each pixel, said apparatus comprising:

extraction means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) for

extracting a plurality of pixels located near each pixel of interest of the input image signal;

class-determining means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) for determining a class from the pixels extracted by the extraction means; and

output image-signal generating means (predicting circuit 5 of Fig. 1, col. 2, lines 32-44 and col. 3, lines 33-42) for generating an output image signal having more sample values than the prescribed number, for the various colors, by processing each pixel of the input image signal in accordance with the class determined by the class-determining means,

wherein the plurality of pixels extracted by the extraction means and used by the class determining means includes at least one pixel that is not adjacent to the pixel of interest (col. 3, lines 44-60 and col. 4, lines 50-63).

Claim 37 differs from Takahashi in that the claim further requires defect-correcting means for correcting defective pixels in the input image signal.

In the same field of endeavor Vincent discloses a digital imaging system (see col. 4 lines 52-64 and fig. 1). Vincent teaches defect correction block which identifies the location of defective pixels in the image so they can be corrected (see col. 8 lines 30-58). Therefore in light of the teaching in Vincent it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takahashi by providing defect correcting means in order to correct defective images.

Claim 37 further differs from the proposed combination of Takahashi and Vincent in that the claim further requires clamping means for clamping the input image signal to eliminate shifted components of the defect-corrected image signal.

In the same field of endeavor Dischert discloses correcting non-linearity of signals. Dischert teaches it is common to clamp video signal (see col. 1 lines 9-32). Dischert further

discloses the gamma corrector reduces or eliminates the perturbation of the signal by reducing or

eliminating noise near the black level (see fig. 2 and col. 2 line 62-col. 3 line 11). Dischert

further discloses clamping means is coupled to source of synchronizing signals, source of

television signals, and source of reference voltage source for clamping particular signal

amplitude thereby producing a clamped television signal (see claim 1). Therefore in light of the

teaching in Dischert, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the proposed combination of Takahashi and Vincent by including

clamping means in order to reduce the noise level.

Claim 37 further differs from Takahashi, Vincent, and Dischert in that the claim further

requires white-balancing means for white-balancing the input image signal to correct the gain of

the clamped image signal supplied from the clamping means.

In the same field of endeavor Miyake discloses an analog image processing circuit 42 in

fig. 1 white balances and gamma-corrects the input image signal (see col. 6 line 61-col. 7 line 5).

Therefore in light of the teaching in Miyake it would have been obvious to one of ordinary skill

in the art at the time the invention was made to white-balance image signals in order to adjust the

image.

Claim 37 further differs from the above proposed combination in that the claim further

requires pixel having all color components.

In the same field of endeavor Nagasaka discloses pixels having all color components (see

col. 9 lines 33-57). Nagasaka further discloses self organization of video to be classified and

arranged on the basis of the identity of partial images of video (see abstract). Therefore in light

of the teaching in Nagasaka it would have been obvious to one of ordinary skill in the art at the

time the invention was made to generate a pixel with all color components in order to improve resolution of the image.

Regarding claim 38, Takahashi et al discloses the claimed characterized in that the output image-signal generating means comprises storage means for storing a set of prediction coefficients for each class and operation means for performing an operation on a set of prediction coefficients which corresponds to the class determined by the class-determining means and the pixels located near the pixel of interest which have been extracted by the extraction means, thereby to generate the output image signal (coefficient memory 4 of Fig. 1, col. 4, line 64 to col. 5, line 40).

Method claims 39-40 are rejected for the same reasons as discussed in apparatus claims 37-38 above.

Regarding claim 49, Takahashi et al discloses an image-signal processing apparatus (Fig. 1) for processing an input image signal at a position of each pixel, said input image signal having any one of various color components, said apparatus comprising:

extraction means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) for extracting a plurality of pixels located near each pixel of interest of the input image signal, each pixel having a color component of the highest density of all color components;

class-determining means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) for determining a class from the pixels extracted by the extraction means; and

pixel-generating means (predicting circuit 5 of Fig. 1, col. 2, lines 32-44 and col. 3, lines 33-42) for generating a pixel at a position of the pixel of interest in accordance with the class

determined by the class-determining means, said pixel having a color component different from

at least the color component of the pixel of interest,

wherein the plurality of pixels extracted by the extraction means and used by the class

determining means includes at least one pixel that is not adjacent to the pixel of interest (col. 3,

lines 44-60 and col. 4, lines 50-63).

Claim 49 differs from Takahashi in that the claim further requires defect-correcting

means for correcting defective pixels in the input image signal.

In the same field of endeavor Vincent discloses a digital imaging system (see col. 4 lines

52-64 and fig. 1). Vincent teaches defect correction block which identifies the location of

defective pixels in the image so they can be corrected (see col. 8 lines 30-58). Therefore in light

of the teaching in Vincent it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Takahashi by providing defect correcting means in order

to correct defective images.

Claim 49 further differs from the proposed combination of Takahashi and Vincent in that

the claim further requires clamping means for clamping the input image signal to eliminate

shifted components of the defect-corrected image signal.

In the same field of endeavor Dischert discloses correcting non-linearity of signals.

Dischert teaches it is common to clamp video signal (see col. 1 lines 9-32). Dischert further

discloses the gamma corrector reduces or eliminates the perturbation of the signal by reducing or

eliminating noise near the black level (see fig. 2 and col. 2 line 62-col. 3 line 11). Dischert

further discloses clamping means is coupled to source of synchronizing signals, source of

television signals, and source of reference voltage source for clamping particular signal

amplitude thereby producing a clamped television signal (see claim 1). Therefore in light of the

teaching in Dischert, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the proposed combination of Takahashi and Vincent by including

clamping means in order to reduce the noise level.

Claim 49 further differs from Takahashi, Vincent, and Dischert in that the claim further

requires white-balancing means for white-balancing the input image signal to correct the gain of

the clamped image signal supplied from the clamping means.

In the same field of endeavor Miyake discloses an analog image processing circuit 42 in

fig. 1 white balances and gamma-corrects the input image signal (see col. 6 line 61-col. 7 line 5).

Therefore in light of the teaching in Miyake it would have been obvious to one of ordinary skill

in the art at the time the invention was made to white-balance image signals in order to adjust the

image.

Claim 49 further differs from the above proposed combination in that the claim further

requires pixel having all color components.

In the same field of endeavor Nagasaka discloses pixels having all color components (see

col. 9 lines 33-57). Nagasaka further discloses self organization of video to be classified and

arranged on the basis of the identity of partial images of video (see abstract). Therefore in light

of the teaching in Nagasaka it would have been obvious to one of ordinary skill in the art at the

time the invention was made to generate a pixel with all color components in order to improve

resolution of the image.

Regarding claim 50, Takahashi et al discloses the claimed characterized in that the pixel-

generating means comprises storage means for storing a set of prediction coefficients for each

class and operation means for performing an operation on a set of prediction coefficients which

corresponds to the class determined by the class-determining means and the pixels located near

the pixel of interest which have been extracted by the extraction means, thereby to generate a

pixel having the different color component (coefficient memory 4 of Fig. 1, col. 4, line 64 to col.

5, line 40).

Regarding claim 51, Takahashi et al discloses the claimed characterized in that the pixel-

generating means generates a pixel having all color components at the position of the pixel of

interest (col. 4, lines 50-63).

Method claims 52-54 are rejected for the same reasons as discussed in apparatus claims.

Regarding claim 64, Takahashi et al discloses an image-signal processing apparatus (Fig.

1) for processing an input image signal at a position of each pixel, said input image signal having

any one of various color components, said apparatus comprising:

extraction means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10) for

extracting a plurality of pixels located near each pixel of interest of the input image signal;

class-determining means (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10)

including a characteristic-data generating section for generating characteristic data about the

pixels of each color component, from the pixels of each color component which have been

extracted by the extraction means, and a class-determining section for determining a class from

the characteristic data generated for each color component; and

pixel-generating means (predicting circuit 5 of Fig. 1, col. 2, lines 32-44 and col. 3, lines

33-42) for generating a pixel in accordance with the class determined by the class-determining

means, said pixel having a color component different from at least the color component of the

pixel of interest,

wherein the plurality of pixels extracted by the extraction means and used by the class

determining means includes at least one pixel that is not adjacent to the pixel of interest (col. 3,

lines 44-60 and col. 4, lines 50-63).

Claim 64 differs from Takahashi in that the claim further requires defect-correcting

means for correcting defective pixels in the input image signal.

In the same field of endeavor Vincent discloses a digital imaging system (see col. 4 lines

52-64 and fig. 1). Vincent teaches defect correction block which identifies the location of

defective pixels in the image so they can be corrected (see col. 8 lines 30-58). Therefore in light

of the teaching in Vincent it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Takahashi by providing defect correcting means in order

to correct defective images.

Claim 64 further differs from the proposed combination of Takahashi and Vincent in that

the claim further requires clamping means for clamping the input image signal to eliminate ·

shifted components of the defect-corrected image signal.

In the same field of endeavor Dischert discloses correcting non-linearity of signals.

Dischert teaches it is common to clamp video signal (see col. 1 lines 9-32). Dischert further

discloses the gamma corrector reduces or eliminates the perturbation of the signal by reducing or

eliminating noise near the black level (see fig. 2 and col. 2 line 62-col. 3 line 11). Dischert

further discloses clamping means is coupled to source of synchronizing signals, source of

television signals, and source of reference voltage source for clamping particular signal

amplitude thereby producing a clamped television signal (see claim 1). Therefore in light of the

teaching in Dischert, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the proposed combination of Takahashi and Vincent by including

clamping means in order to reduce the noise level.

Claim 64 further differs from Takahashi, Vincent, and Dischert in that the claim further

requires white-balancing means for white-balancing the input image signal to correct the gain of

the clamped image signal supplied from the clamping means.

In the same field of endeavor Miyake discloses an analog image processing circuit 42 in

fig. 1 white balances and gamma-corrects the input image signal (see col. 6 line 61-col. 7 line 5).

Therefore in light of the teaching in Miyake it would have been obvious to one of ordinary skill

in the art at the time the invention was made to white-balance image signals in order to adjust the

image.

Claim 64 further differs from the above proposed combination in that the claim further

requires pixel having all color components.

In the same field of endeavor Nagasaka discloses pixels having all color components (see

col. 9 lines 33-57). Nagasaka further discloses self organization of video to be classified and

arranged on the basis of the identity of partial images of video (see abstract). Therefore in light

of the teaching in Nagasaka it would have been obvious to one of ordinary skill in the art at the

time the invention was made to generate a pixel with all color components in order to improve

resolution of the image.

Regarding claim 65, Takahashi et al discloses the claimed characterized in that the

characteristic-data generating section generates, as the characteristic data, a space activity of the

pixels of each color component, which have been extracted by the extraction means (class code

circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line 10).

Regarding claim 66, Takahashi et al discloses the claimed characterized in that the

characteristic-data generating section generates the space activity by performing of ADRC

(Adaptive Dynamic Range Coding) process on the pixels of each color component (col. 1, lines

39-50).

Regarding claim 67, Takahashi et al discloses the claimed characterized in that the

extraction means extracts the pixels corresponding to each color component from pixels existing

in a region near the pixel of interest (class code circuit 3 of Fig. 1, col. 3, lines 44 to col. 4, line

10).

Method claims 68-71 are rejected for the same reasons as discussed in apparatus claims

64-67 above.

8.   Claims 19-23, 25, 41-42, 55-57, and 72, 74-75 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Takahashi et al (US 5,469,216) in view of Vincent et al. (US Pat. No.

5,436,659) and further in view of Dischert (US Pat. No. 4,499,494), Miyake (US Pat. No.

6,222,985), Nagasaka (US Pat. No. 6,400,890), and further in view of Official Notice.

Regarding claim 19, Takahashi as further modified by Vincent, Dischert, Miyake and

Nagasaka discloses all the claimed limitations as discussed in claim 1 above except for providing

a recording medium storing a computer program.

It is noted that using microprocessor with ROM for processing video signal is old and well known in the art and; therefore, Official Notice is taken.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the well known microprocessor and ROM into Takahashi et al's system in order to simplify and accurately process the video signal.

Claims 20-23 and 25 are rejected for the same reasons as discussed in claims 2-5 and 7 above.

Regarding claim 41, Takahashi as further modified by Vincent discloses all the claimed limitations as discussed in claim 39 above except for providing a recording medium storing a computer program.

It is noted that using microprocessor with ROM for processing video signal is old and well known in the art and; therefore, Official Notice is taken.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the well known microprocessor and ROM into Takahashi et al's system in order to simplify and accurately process the video signal.

Claim 42 is rejected for the same reasons as discussed in claim 40 above.

Regarding claim 55, Takahashi as further modified by Vincent discloses all the claimed limitations as discussed in claim 52 above except for providing a recording medium storing a computer program.

It is noted that using microprocessor with ROM for processing video signal is old and well known in the art and; therefore, Official Notice is taken.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the well known microprocessor and ROM into Takahashi et al's system in order to simplify and accurately process the video signal.

Claims 56-57 are rejected for the same reasons as discussed in claims 53-54 above.

Regarding claim 72, Takahashi as further modified by Vincent discloses all the claimed limitations as discussed in claim 64 above except for providing a recording medium storing a computer program.

It is noted that using microprocessor with ROM for processing video signal is old and well known in the art and; therefore, Official Notice is taken.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the well known microprocessor and ROM into Takahashi et al's system in order to simplify and accurately process the video signal.

Claims 74-75 are rejected for the same reasons as discussed in claims 66-67 above.

9.   Claims 19-23, 25, 41-42, 55-57, and 72, 74-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (US 5,469,216) in view of Vincent et al. (US Pat. No. 5,436,659) and further in view of Dischert (US Pat. No. 4,499,494), Miyake (US Pat. No. 6,222,985), Nagasaka (US Pat. No. 6,400,890), and further in view of Kndo et al (US 5,748,235).

Regarding claim 6, Takahashi as further modified by Vincent, Dischert, Miyake and Nagasaka discloses all the claimed limitations as discussed in claim 1 above except for providing the claimed characterized in that the color component represent a color of red, blue, or green.

Kondo et al teaches that the capability of converting standard definition to high definition can be applied to color image generated from CCD (col. 4, lines 30-44).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the generating of color image generated from CCD as taught by Kondo et al into Takahashi et al's system in order to convert color image to high definition.

Regarding claim 8, Kondo et al discloses the claimed characterized in that the acquisition means is a solid-state imaging element (col. 4, lines 30-44).

Regarding claim 9, the proposed combination of Takahashi, Vincent, and Kondo disclose all the claimed limitations except for providing the claimed characterized in that the solid-state imaging element is a CCD image sensor of the Bayer arrangement.

It is noted that the CCD image sensor of the Bayer arrangement is old and well known in the art and; therefore, Official Notice is taken.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the well known CCD image sensor of the Bayer arrangement into Kondo et al's system since it merely amounts to selecting readily available CCD.

Claims 15 and 17-18 are rejected for the same reasons as discussed in claims 6 and 8-9 above.

Claims 24 and 26-27 are rejected for the same reasons as discussed in claims 6 and 8-9 above.
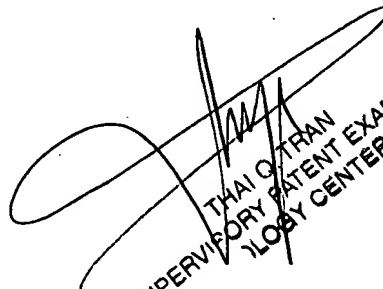
Conclusion

10.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to HELEN SHIBRU whose telephone number is (571) 272-7329. The examiner can normally be reached on M-F, 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, THAI Q. TRAN can be reached on (571) 272-7382. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Helen Shibru
July 9, 2007